CLAIMS

1. A method of determining the service metal temperature of a γ/γ' MCrAlY-coated component after the use in a high temperature environment, where the γ/γ'-MCrAlY-coating (6) applied to the component exhibits a non-equilibrium γ/γ'-microstructure at a temperature lower than the temperature during operation and the depletion of chromium from the γ/γ'-MCrAlY-coating still allows the α-Cr phase to form, the method comprising the steps of
   (a) measuring the coating electrical conductivity and magnetic permeability of the MCrAlY-coating (6) at different locations of the components by means of a multi-frequency eddy current system and
   (b) determining the exposure temperature of said different locations of the components from the measured conductivity and permeability.

2. The method according to claim 1, wherein the method is applied for a coating (6) consisting of (wt.-%) 25% Cr, 5.5% Al, 1% Ta, 2.6% Si, 0.5%Y, Rest Ni and unavoidable impurities.

3. The method according to claims 1 or 2, wherein using the method for determining the service metal temperature of a gas turbine blade.